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# CREATING INFRASTRUCTURE

## TO SUPPORT GROWTH AND COMPETITIVENESS

Key Challenges and Opportunities as Ontario Moves Ahead in the New Millennium

**ONTARIO**  
JOBS AND INVESTMENT BOARD

*A Discussion Paper prepared by the  
Special Advisory Panel on Infrastructure*

October, 1998

*Special Advisory Panel on Creating  
Infrastructure to Support Growth  
and Competitiveness*

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## A MESSAGE FROM THE PRESIDENT

As we approach the new millennium, Premier Harris has challenged all of us to think about our economic future.

He is optimistic about the economic future of our communities, our regions and our province in this changing global environment. We have the talent, the resources and the power to decide what kind of future we want. Together we can develop the strategies and the actions to get us there.

To meet the challenges of the global marketplace, and to seize the opportunities before us we need a road map. A road map developed together, beginning with a shared vision of making Ontario the best jurisdiction in North America to live, work and raise a family.

As Ontarians, we need not approach this challenge with fear. We should have a strong sense of confidence and optimism. Our economic and fiscal problems of the recent past are now being addressed and the results are clear. The provincial deficit is coming down. We are on track to balancing our budget by fiscal year 2000-2001. Personal income taxes, which used to be among the highest in North America, are now among the lowest in Canada. Job creation has reached historic levels. Over

370,000 net new private sector jobs have been created since June of 1995.

However, the work to date has not won us the race. We must continue to build a strong and growing economy. We must continue to create more jobs and prosperity. We are in a race that does not have a finish line. Our competitors next door, and around the world, are not standing still. All of the provinces and states around us are continuing to improve their business and investment climate.

If we wish to keep the quality jobs we now have and stimulate new growth and investment in Ontario, we must continue to improve our business climate at both the community and provincial level. We must continue to innovate and to sharpen our competitive edge. In the race for quality jobs and investment, our goal is to get out in front and stay there.

That is why the Premier has asked us to embark on this challenge. As individuals, businesses, communities and organizations from all sectors and regions of our province, we must consider the future. We must plan for the new economy. We must ensure our future growth and prosperity so we can maintain and enhance the quality of life for all Ontarians. It is only through increased jobs and prosperity that we will be able to continue to develop and finance the social programs and quality of life we all expect in our caring and compassionate society.





Ontario is one of the most export-oriented and advanced economies of the world. That is one of our strengths, but it also poses a challenge. We must recognize our need to remain globally competitive across the diverse sectors and regions of our economy. We cannot rely on a low Canadian dollar for our long-term competitive advantage. We must continually strive to improve quality and efficiency. In that way, we will keep the quality jobs that already exist in Ontario and attract new investment to our province.

In the new global environment, we must recognize that our capital – both financial and human – can migrate quickly. The critical challenge Ontario faces is to differentiate itself. That is, to rise above the crowd by creating an environment where good things are happening, where entrepreneurs and business people can grow and succeed, and where people want to live and work.

To help us develop a road map for Ontario's economic future, Premier Harris created the Ontario Jobs and Investment Board. As Chair of the Board, the Premier has asked us to develop an action-oriented economic vision and plan for the next century.

To assist the Board in its work, three special advisory panels have been created. Each panel will explore

distinct ways to build an economic vision and plan that will guide us into the new millennium.

The Board asked the panels to consider Ontario's economic strengths and weaknesses, as well as its opportunities and threats, and to seek the input of individuals and organizations across the province.

This discussion paper has been prepared by the Special Advisory Panel on *Creating Infrastructure to Support Growth and Competitiveness* to support the Premier's Conferences on Jobs and Prosperity. These conferences will be held in regions across Ontario in the fall of 1998.

Regardless of whether you can attend one of these conferences, the Jobs and Investment Board welcomes your input and advice. Together, we will build an economic plan to prepare Ontario for the new millennium.

On behalf of the Board and our Special Advisory Panels, we look forward to hearing from you.

Sincerely,

David Lindsay  
President and CEO

Ontario Jobs and Investment Board

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## *INTRODUCTION FROM THE PANEL*

The Ontario Jobs and Investment Board asked this *Special Advisory Panel on Creating Infrastructure to Support Growth and Competitiveness* to consider the challenges and opportunities facing Ontario's infrastructure, and provide advice on practical actions and strategies designed to maximize infrastructure's contribution to our long-term economic prosperity.

We are one of three panels asked to develop discussion papers on issues vital to Ontario's prosperity in the new millennium. The other two panels have prepared discussion papers on:

- *Creating an Innovation Culture*
- *Preparing People for Tomorrow's Jobs*

In developing this paper, our panel recognizes the world of infrastructure is rapidly changing – especially the respective roles and responsibilities of government and the private sector in financing, delivering and managing public infrastructure. The pace of change and restructuring is more dramatic in some leading jurisdictions, compared to Ontario.

As the economic engine of the entire nation it is vital to other Canadians too, that Ontario takes a leadership role in positioning infrastructure to support growth and competitiveness.

Governments the world over are increasingly focused on maximizing the use and efficiency of existing infrastructure. Governments are pursuing opportunities for greater private sector involvement, where there are demonstrated cost and efficiency advantages. With private sector responsibility for infrastructure comes market pricing, demand-driven services, and investors' expectations for healthy returns.

Not all infrastructure projects are suitable candidates for private sector participation. There is a clear and continuing government role in providing infrastructure that is essential and strategic, especially where market forces are weak or unorganized. In cases where infrastructure ownership and responsibility remain with the public sector, governments are still under increasing pressure to adopt responsible, more business-like approaches in developing, managing and funding these public assets.

And of course the people, communities and businesses that depend on infrastructure will continue to count on government to set the overall economic directions, planning frameworks, standards and regulations that guide both public and private infrastructure investments in the province.

We recognize that Ontario is a large jurisdiction with diverse economic and population characteristics. Not surprisingly, infrastructure demands and priorities also vary significantly from one part of the province to the other.

Solutions for managing rapid growth in Ontario's large urban centres, for example, may not be relevant to rural, northern, and Aboriginal communities more concerned about building and maintaining basic lifelines like transportation, communications and water infrastructure. A one-size-fits-all approach clearly does not work and accentuates the need for local action at the community level, to identify local priorities and develop local solutions.

This paper is intended to stimulate public discussion – and help set the stage for your ideas and suggestions – on key infrastructure challenges and opportunities. We want your views on how Ontario and Ontario's communities should develop and position our infrastructure to support long-term growth and competitiveness. Your input and opinions are important – they will help form the Ontario government's economic vision and action plan for the new millennium.

We invite you to respond to the key challenges and questions that are summarized in the tear-away section at the back of this paper. You can also reach us by visiting our web site at [www.ontario-canada/jobgrow](http://www.ontario-canada/jobgrow) or writing to: *The Special Advisory Panel on Creating Infrastructure to Support Growth and Competitiveness*  
*Ontario Jobs and Investment Board*  
Suite 4340, Whitney Block  
99 Wellesley Street West

The members of the Special Advisory Panel on *Creating Infrastructure to Support Growth and Competitiveness* are:

- Oskar Sigvaldason, President, Acres International Ltd. (Chair)
- Tom McCormack, President, Strategic Projections Inc.
- Jan Rush, Deputy Minister, Ministry of Transportation.

## SETTING THE STAGE

*Consider:*

- What are the gaps and deficiencies in Ontario's infrastructure base?
- What should be Ontario's infrastructure investment priorities over the next five, 10 and 20 years?
- How should Ontarians plan, finance, develop and manage our future infrastructure in ways that meet public needs and nourish a strong, prosperous and globally competitive economy?

Imagine infrastructure as the lifelines and platforms that enable Ontario's economy to grow and prosper. Infrastructure is an important cornerstone in our economic development. When it works well, it attracts business activity, investment and job creation.

Infrastructure in the very broadest sense includes the facilities, networks, systems and social institutions that

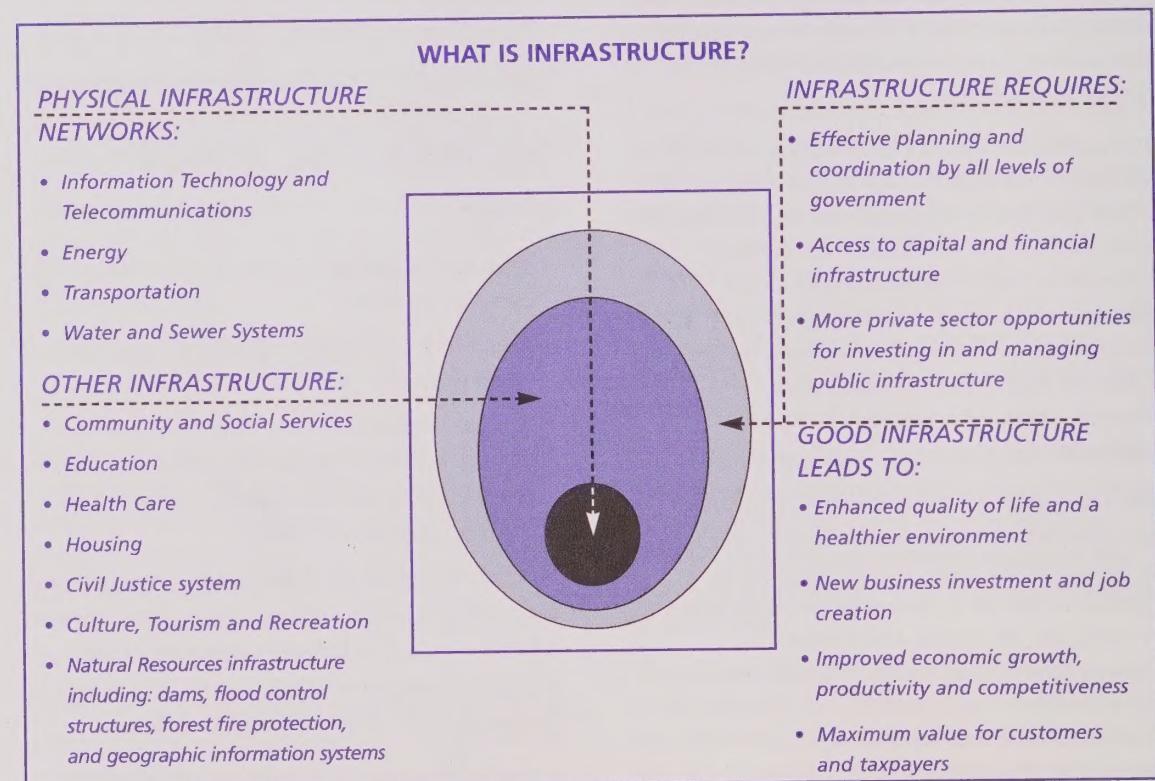
**TO STIMULATE DISCUSSION ABOUT ONTARIO'S LONG-TERM INFRASTRUCTURE CHALLENGES, THIS PAPER WILL EXAMINE:**

- *The importance of infrastructure to Ontario's overall economic performance, regional and local development, international trade and quality of life*
- *The economic, demographic and technology trends that are expected to drive future demand for infrastructure in Ontario*
- *Issues such as: managing the equity Ontario taxpayers have built up in our infrastructure, using existing infrastructure more efficiently, keeping pace with international competitors, developing better opportunities for private sector investment, improving infrastructure planning and coordination, and achieving sustainable development.*

promote economic activity, enhance productivity and contribute to a better quality of life.

This discussion paper will focus on physical infrastructure networks – information technology

networks, telecommunications, energy, transportation and water and sewer networks. Physical infrastructure networks are the core connectors of economic development activities that sustain growth and competitiveness.



## WE'VE COME A LONG WAY...

- The first automobile in Canada was registered to a Hamilton, Ontario resident in 1898. The six-cylinder Winton runabout cost \$1,000. By 1925, 11% of Ontario's population owned cars.
- Ontario's hydroelectric power plants began harnessing the raging waters of the Niagara River in 1905.
- The vacuum tube repeater made transcontinental telephone service possible in Canada for the first time in 1916, when Montreal was connected to Vancouver. To mark the historic moment, an audience assembled in Montreal listened intently to the sound of lapping waves from the Pacific coast.
- The Queen Elizabeth Way, Canada's first four-lane divided superhighway, was officially opened in 1939. The final section of the Trans Canada Highway was paved in 1959. Ontario accounts for about one-third of the Trans Canada's 8,000 km total length.

- From 1945 to 1972, Ontario Hydro brought into service 41 new sources of electric power generation. Total electricity production capacity increased six-fold.
- Canada's long-distance microwave radio relay system was opened in 1953, allowing TV audiences in Toronto and Montreal to watch the same live program simultaneously for the first time. By 1958 the Trans-Canada Telephone System's microwave network extended coast to coast. Stretching more than 6,000 kilometres, it was the largest such system in the world.
- In 1993, after 100 years, Bell Canada literally ran out of numbers in the Golden Horseshoe and Greater Toronto Area – the highest density of phone customers in Canada. To meet surging demand for basic phone service, cellular phones, fax machines and pagers, Bell split the 416 area code. The City of Toronto retained 416 while surrounding municipalities switched to new area code 905.

## Infrastructure:

- Carries Ontario's goods to local and global markets.
- Lets us communicate our ideas and knowledge via print and electronic media, and by telephone, fax, e-mail, the Internet and satellite.
- Connects us to our jobs and makes it possible for us to travel efficiently from place to place.

- Brings essentials such as water and energy into our homes and businesses.
- Protects public safety and our environment.
- Helps us to work together as an economic community – sharing ideas, trading goods and creating wealth.

Previous generations made crucial infrastructure investments on our behalf that have shaped and

The depth and quality of our infrastructure helped Ontario develop a strong, modern economy that became globally competitive and admired in the 20th century. What decisions and actions do we need to take now to develop infrastructure that will enable us to build a stronger, more competitive economy that stimulates job creation and improves our quality of life?

## **IMAGINE A FUTURE, WHERE:**

- We use the infrastructure we've already built and invested in with greater efficiency.
- Every dollar invested in infrastructure creates greater economic returns and maximum value, for taxpayers as well as customers.
- Ontario is admired around the world for having infrastructure that supports a healthier environment and enhanced quality of life.
- The three levels of government work more cooperatively and strategically to deliver infrastructure in the most timely and cost-effective manner.
- The private sector takes on a major role in delivering, managing and financing public infrastructure in Ontario.
- Ontario is more aggressive and successful in implementing innovative, leading edge solutions for infrastructure development and management – including adopting the best practices established by other provinces, states and countries.

strengthened Ontario's economic destiny. Imagine how different our lives and communities would be today, for example, if previous decisions-makers had deferred building the province-wide electricity grid, municipal water and wastewater treatment facilities, and the "400-series" freeway system.

Ontarians are already looking ahead to the new millennium. New additions to our infrastructure are already producing tangible benefits. The pressures of growth and demand spurred these investments, which required long-term planning. For example:

- The 407 Electronic Toll Route offers commuters and businesses 67 km of congestion-free highway travel across the Greater Toronto Area (GTA).
- The new, expanded international rail tunnel at Sarnia/Port Huron helps Ontario's exporters penetrate lucrative world markets.
- Impressed by the recent evolution of cell phones into pocket-sized, computerized handsets? Cell phone companies are now investing billions of dollars to prepare for wireless networks connecting personal computers and data bases around the world.
- Telecommunications companies are investing billions of dollars in satellite "constellations" that will beam voice, fax, paging and high-speed data connections directly into homes and offices – avoiding the huge expense of re-wiring land cables.

It's our turn now to plan, develop and manage infrastructure to enhance the economic future and quality of life for the generations to come.

### *Consider:*

- How do we build on and improve Ontario's strong infrastructure legacy and track record?
- What are our expectations from Ontario's infrastructure in a modern global economy?
- How will technology shape our demand for infrastructure?

## **MEETING GROWTH AND DEMAND**

Over the next 25 years, almost four million people are likely to be added to Ontario's population rolls.

- Where will we live, learn and work? How will we travel?
- How will we manage the additional pressures on our land, resources and waste management systems?
- What impacts will the aging population create on infrastructure?

Our ever-increasing and changing population, and growing economy, are bound to demand continuous investments in the supporting infrastructure systems. In addition to managing our current infrastructure more efficiently, we can't lose sight of the new and expanded infrastructure projects of tomorrow.

For clues about where and when we will need new infrastructure, we need to consider Ontario's economic and population growth.

Ontario's projected population is growing at an average rate of 1.5% per year. It will likely slow to 1.2% per year between 2001 and 2011 and 1% from 2011 to 2021. Still, Ontario's estimated population growth is faster than the G-7 industrial countries, including Canada. The bottom line: Ontario's total population is forecast to climb from 11.4 million today to 13.8 million in 2011 and 15.2 million in 2021.

If historic trends stay unchanged, the Greater Toronto Area will continue to be home to about 43% of Ontario's total population. The GTA population is expected to swell to 6.7 million from 4.9 million – a 38% increase – between now and 2021. The big bulk of this growth is taking place in the "905 area code" municipalities surrounding Toronto.

According to a Toronto Board of Trade report, the GTA population grows by up to 100,000 each year.

The GTA is second only to Dallas-Fort Worth as the fastest-growing metropolitan area in North America.

Such concentrated growth forces Ontarians to deal with urbanization and congestion pressures. The challenge of accommodating this explosive growth is already manifested in several ways:

- Calls for more efficient and coordinated transit, to help mitigate the effects of all-day "rush hours" on sections of GTA highways and major arteries.
- The proliferation of portable classrooms in "905-area" schools.
- Storm water runoffs and sewer overflows, often resulting in unusable beaches after heavy rains.
- Urban sprawl threatens prime agricultural land and green spaces.

Efficient and quality infrastructure in the GTA is not only a concern for local residents and businesses, but for Ontarians across the province. The GTA is the hub of *provincial* as well as *national* finance, business, communications and transportation. This underscores the importance of maintaining excellent infrastructure within the GTA as well as connections between the GTA and the rest of the province, the nation and the world.

### BETWEEN THREE AND FOUR MILLION NEW ONTARIANS BY THE YEAR 2021: THAT'S EQUIVALENT TO ABOUT–

- 47 new cities, each the size of Sault Ste. Marie, or
- 33 new cities, each the size of Thunder Bay, or
- 12 new cities, each the size of London, Ontario

## WHAT IF...

*What would happen if we stopped expanding our infrastructure? Much of Ontario would literally come to a standstill. Without major transportation expansion, for example, almost all major highways around the Greater Toronto and Ottawa areas would soon be overloaded. Today, 45% of provincial highways in the GTA have enough capacity to meet demand. This figure is expected decline to 20% by 2021, if new transportation infrastructure investment is deferred.*

As an economic engine for all of Ontario, the GTA's long-term economic success is also crucial for the well being of less populated regions in the province.

Another key trend in Ontario's population is the marked shift from a younger to an older population. The big Baby Boom generation will move through its prime working years and into the normal retirement age starting in 2011. The median age in Ontario will rise from 35 in 1996 to 41 in 2021.

Aging boomers are driving accommodation, mobility and recreation trends, and placing new demands on community and health care services. Many are expected to move to rural areas, bringing with them housing, leisure, medical, transportation and other infrastructure needs.

Rural and northern infrastructure has developed more slowly than urban infrastructure because, in many cases, the population has not been large enough to support the investment. For lesser populated regions and small communities, infrastructure issues centre on the availability, cost and quality of basic services like roads, telecommunications and water systems. Adequate and competitively priced infrastructure is one key to maintaining current economic activity and jobs, and attracting a more diversified local economic base.

## PROTECTING OUR ENVIRONMENT AND QUALITY OF LIFE

Decisions about whether to build infrastructure – and where to do it – affect the way we settle and use our land, consume resources and produce waste.

Ontarians understand the importance of protecting the quality of our air and water, farm land and green space, and fish and wildlife resources. The government maintains a long track record of protecting the environment through regulations and standards. Sizeable infrastructure projects in Ontario are subject to an exhaustive public process of environmental review and assessment, and exploration of development alternatives.

Ontario was one of the first jurisdictions in the world to implement watershed protection strategies. We are advanced in applying remote sensing and environmental information technologies to manage our natural resources more effectively. Our sophisticated waste collection, separation and processing infrastructure makes Ontario well-known in waste reduction, reuse and recycling systems. Our experience and leadership in these areas are marketed by Ontario firms around the world.

**A dynamic, growing economy does not come at the expense of a healthy environment.** Evidence shows us that infrastructure development that respects the environment makes good business sense:

- Technological improvements help us to use our infrastructure more efficiently. By using conservation technologies in our water utilities and advanced traffic management systems on our freeways, for example, we limit the need for – and cost of – infrastructure expansion while meeting the demands of economic and population growth.
- Local economic restructuring in Ontario's inner city and town cores is freeing up older buildings and vacant spaces for redevelopment. Revitalizing our well-established downtown and “main street” areas, served by existing transit and utility connections, can be more attractive and profitable than developing new business parks and residential subdivisions on the urban-rural fringe.
- The world is on the lookout for innovative and effective sustainable development solutions. Ontario firms lead the R&D and commercialization of

environmental technologies here at home. That puts them in a good position to expand into the growing global market, resulting in more high-tech job creation and skills development in this province.

The pressure to follow a smarter, environmentally sensitive path to economic growth is global in scope. Pollution knows no jurisdictional boundaries. Efforts to negotiate and implement international targets and agreements to curb “greenhouse” gas emissions and toxic chemicals, and save endangered species, show how vital it is to move forward cooperatively – and the futility of jurisdictions acting on their own.

Economic growth and development can take place in an environmentally responsible manner. Pricing our infrastructure to take into account environmental costs helps us to make more efficient use of what we already have, and to finance infrastructure improvements and expansions. Efficiency improvements ultimately mean cost savings for taxpayers and users – and a healthier environment for future generations.

A clean and safe environment makes Ontario attractive to residents, businesses and investors.

*Governments worldwide are harnessing the potential of private sector expertise, flexibility and financing for many aspects of infrastructure development and management.*

## **DOING MORE BUSINESS WITH THE PRIVATE SECTOR**

As governments strive to manage infrastructure more efficiently, they're also balancing other objectives like cutting taxes, reducing the deficit and debt, and meeting demands for other priority programs. In Ontario and around the world, governments focused on sound fiscal management are re-thinking their role as direct providers of public infrastructure. They're turning to the private-sector to share or take responsibility for developing, managing and financing public infrastructure.

But while the private sector offers the flexibility, skills and increasingly, the financial resources to deliver public infrastructure more effectively and efficiently, there is still an ongoing government role as the *custodian* of protecting public safety, the environment and other standards. The government is also responsible for strategic economic planning, by defining broader societal needs, and choosing the regulatory and delivery mechanisms for meeting these needs.

### *Consider:*

- How will Ontario finance our future infrastructure investment needs? Who derives the most benefits

from, and who should pay for, infrastructure improvements?

- Who will build and deliver the best and most cost-efficient infrastructure? The public sector? Private companies? A combination of the two? Does it depend on the project and location?
- What are the opportunities for greater private sector involvement? Outright privatization? Contracting out? User fees?

The private sector has a long historical involvement in the delivery of Ontario's public infrastructure. But the respective responsibilities of government and the private sector have changed over time as our economy developed and matured:

- Only the public sector possessed the resources to finance many early infrastructure *mega projects* that were planned and built on such a massive scale. And as the monopoly provider, government could count on protected revenue sources.
- As networks and facilities were built and rebuilt, and new technologies came on stream, opportunities emerged to change traditional roles.

The definition and nature of "public good" – an essential good that private markets, it was thought,

could not supply adequately – also changed across the main economic sectors. For example:

- **Energy:** When the province-wide electricity system was first developed, public ownership was deemed to be best. Why? Because the cost to develop and link-up a provincial system would have been prohibitive for the private sector and unaffordable to fledgling industrial users. Generation plants, such as fossil, hydro and nuclear power, were planned and built to take advantage of huge economies of scale, and required huge investments. Public financing was available and cost effective.

A worldwide trend is now underway to move power systems into the private sector. Consumers are demanding greater choice and competition. Technological advances have made smaller-scale power generation projects more economically attractive, while conventional larger-scale projects must overcome bigger environmental and financing challenges.

Like other jurisdictions around the world, Ontario is responding by opening up the public monopoly in electricity generation to competition. Market needs are expected to drive power generation investment decisions in the future. Electricity transmission and distribution systems, however, will remain monopoly sectors regulated by the province.

- **Telecommunications:** In most of Ontario and Quebec, the private sector was the lead player in establishing and running the telephone systems – but in a heavily regulated, monopolistic marketplace. In sparsely populated provinces and Northern Ontario, provincial governments originally built and delivered the system.

The current generation of wireless services, including cellular and personal communications services, is being led by private-sector firms competing in a federally regulated framework. In Canada and around the world, traditional telephone monopolies have been broken up to give consumers more competition and choices. Deregulation has unleashed a wave of innovation and the creation of an “innovation culture” in the telecom and information technology sectors.

- **Transportation:** Privately built and maintained toll roads were an important feature of Ontario's early road network. But with the advent of motor cars and trucks, and growing demand for paved highways, they were superseded by a modern, seamless network built, maintained and paid for by provincial and municipal taxpayers. The new Highway 407 Electronic Toll Route across the GTA, however, marked the introduction of a large-scale public-private partnership to build and maintain a crucial link in the transportation network.

*An environment that encourages greater private sector responsibility for infrastructure at home, in turn helps Ontario firms to market their infrastructure know-how and leadership internationally.*

*The recent federal Task Force on the Future of the Canadian Financial Services Sector calls for more open competition among banks, insurance companies and other financial providers. The task force's final report makes recommendations aimed at increasing the availability of capital by encouraging new bank start-ups, the growth of new financial institutions and allowing foreign banks to expand commercial lending in Canada.*

*Tourism is one of the world's largest and fastest-growing industries. In Ontario alone, visitors pour \$14 billion per year into our tourism industry, generating nearly 400,000 direct and indirect jobs. Our assets – an abundance of natural and cultural attractions – clearly help make tourism a leading economic engine.*

*How can we ensure that our infrastructure enhances the visitor and tourist experience in Ontario?*

Involving the private sector can help transfer some of the risk associated with infrastructure projects out of the public taxpayer domain. For example, if a private firm is responsible for the construction phase of a public project, it shoulders much of the risk associated with potential cost overruns, quality guarantees and implementation delays.

We are not limited to the one extreme of total government responsibility, or the other of letting private markets determine when or whether Ontario will continue to benefit from quality infrastructure investments. Between both extremes are growing opportunities for public-private partnerships, alternative service delivery methods and cooperation between different levels of government.

## **CONNECTING AND COMPETING WITH THE WORLD**

Ontario is one of the world's greatest trading jurisdictions. Exports account for almost half of the wealth created in this province. A large part of our infrastructure system is positioned to move Ontario's goods and products to markets in the United States and around the world.

Comparing Ontario's infrastructure to other jurisdictions can help us pinpoint gaps and improve our performance.

### *Consider:*

- When it comes to the capacity and quality of our infrastructure, how does Ontario compare to other provinces, US states and countries?
- What practices should Ontario adopt from competing jurisdictions with an enviable track record in infrastructure management? What can we learn from experiences in the rest of the world?

The quality of infrastructure has always been a factor in determining a jurisdiction's competitive advantage. This has been especially true in Canada. Our abundance of natural wealth would have little economic value without our networks of waterways, railways and highways to exploit these resources.

Infrastructure investment encouraged Ontario's rapid industrialization in the 20<sup>th</sup> century by bringing affordable electrical power to manufacturing industries and by using railways and highways to connect suppliers and markets.

A reputation for quality infrastructure is a valuable asset in today's global economy. International business investors have revealed in surveys that when

they think of Ontario, they also think of our high quality infrastructure system. When asked about “first impressions” of Ontario as a place to invest, executives ranked infrastructure as our second most important attribute, behind our skilled labour force but ahead of our business climate and closeness to the U.S. market.

As an export-oriented economy, the efficiency of our “gateway” infrastructure – airports, border crossings and international communication networks – is especially critical to Ontario’s export industries and to their success in penetrating global markets. Since the advent of the North American Free Trade Agreement (NAFTA), our dependency on international markets has increased significantly. Today, exports account for 49% of provincial Gross Domestic Product (GDP) – up from 28% on the eve of NAFTA in 1989.

By contrast, exports make up 25 to 30% of GDP in France, Germany, Italy and the United Kingdom, and 10 to 15% of GDP in Japan and the United States.

As a major trading jurisdiction, we cannot afford to stand still and coast with our reputation for good infrastructure. We are, in fact, under pressure to meet growing demand and the challenge of our competitors.

Public investment in Ontario infrastructure as a share of GDP is less than one-third of Japan’s and less than one-half of France’s and Germany’s investment. Our infrastructure investment levels are also low, compared to our neighbouring competitors, the US-Great Lakes states. Between 1988 and 1994, Ontario was a “middle-of-the-pack” investor – not as high as Minnesota, New York and Wisconsin but out-performing Indiana, Michigan, Ohio and Pennsylvania. By 1995, however, the province’s investment rate fell below the 1988-94 averages of all competing Great Lakes states.

Tipping the scales in the US states’ favour is their federal government’s huge presence in infrastructure funding. A new US federal bill, for example, proposes to invest \$200 billion in federal aid to improve state and urban transportation corridors.

While we contemplate ways to sharpen our competitive edge, other jurisdictions are working hard to position their infrastructure for the challenges – and opportunities – presented by economic change, growth and sustainability. For example, Alberta, California, Oregon, Massachusetts and North Carolina are working closely with business stakeholders, communities and the general public to develop long-term infrastructure plans.

*Border crossings and export processing centres, including highway access to international bridges and tunnels, are logical infrastructure “pressure points” because of our growing reliance on trucks to move exports to market. Today, about \$80 billion of goods per year – two-thirds of Ontario’s total exports to the United States – are exported by truck.*

*Traffic congestion in the GTA is not only problematic for local businesses and residents, but also for exporters moving goods from eastern and northern Ontario through the GTA to border crossings at Niagara Falls, Fort Erie, Sarnia and Windsor.*

*Infrastructure is key to Ontario's international image... it shows the rest of the world how well we manage our responsibilities and set our priorities. It provides a key point of comparison with other jurisdictions – one that, historically, has been a key competitive advantage for Ontario.*

*Imagine a business person or tourist returning from an international trip and being asked about the experience. Picture two possible answers:*

- *"It was horrible. Nothing works there."*
- *"It was fantastic. The place functions as smoothly as clockwork."*

*It's not hard to see the impact of these perceptions. We want all people – international visitors, investors, other Canadians and Ontarians themselves – to feel confident that Ontario's economy does indeed run as smoothly and predictably as clockwork.*

Ontario's fiscal challenges were compounded by a recession in the early 1990s that ran deeper and longer than the economic downturns experienced by many other jurisdictions. Ontario, moreover, has a proportionately larger budgetary deficit to overcome. To bring spending in line with revenue levels, the provincial government had to make tough fiscal decisions. These decisions were necessary to build a foundation for a healthy business investment climate.

Today, on the verge of the new millennium, Ontario is emerging with a more positive fiscal outlook. Better fiscal management and the corresponding economic recovery have helped the government to implement badly needed tax cuts and stay on track to balancing the budget by fiscal year 2000-01.

We are now in a better economic position to plan our infrastructure needs, to keep pace with and outdistance our key competitors.

# MANAGING OUR INVESTMENT IN INFRASTRUCTURE

With the rest of the world pursuing innovative approaches to building infrastructure, Ontario is pressed to keep up with the pacesetting jurisdictions. We also need to consider gaps and room for improvement in our own ways of doing business.

- Are we investing enough in infrastructure? Are we making the right investments?
- How should we measure the effectiveness of our investments?
- How well do we carry out infrastructure planning? Do we need new or better analytical tools?

The stakes are high. Each and every Ontarian has a substantial financial stake in our infrastructure. All told, we have built up about \$85 billion worth of public infrastructure. That works out to \$7,500 for every Ontarian, and includes:

- provincial highways
- municipal roads and transit systems
- water and sewage treatment facilities

- hospitals and schools, and post-secondary institutions
- police stations, courts and jails.

The value of our infrastructure has grown – more than 350% since 1955. The increase reflects the massive increase in capital spending and infrastructure expansion in the two decades after World War Two.

Investment levels turned flat in the 1970's. By then we already had in place most of the modern-day transportation systems, utilities, buildings and other public infrastructure associated with a mature industrial economy. Our spending focus shifted from building brand new projects to maintaining existing infrastructure. And like many other jurisdictions, Ontario had to balance growing and competing demands for the taxpayer's dollar, including education, health and social programs.

An ever-growing and aging infrastructure stock also translates into increasing maintenance and rehabilitation costs. Many facilities and structures are due for upgrading or replacement to protect public safety, reliability and the environment.

Preventive maintenance pays for itself by reversing the effects of normal wear and tear, and reducing the need for costlier and more disruptive repair work later.

*Homeowners understand the need to manage their equity. During the lifetime of home ownership, we make many strategic investments in essential and preventative maintenance, renovations and additions. Protecting and building equity is sound financial planning. The same is true of infrastructure.*

*Roads, water, sewer lines and other such systems account for about 55% of Ontario's public infrastructure. Buildings account for another 35%, and machinery and equipment 10%.*

*What happens if we defer essential investments in infrastructure? We run the risk of incurring an infrastructure deficit. There are two components to an infrastructure deficit:*

- The renewal deficit is equivalent to the investment needed to restore the value or condition of an asset to its expected level of service.*
- Deferred growth-related investments are investments that normally would have been made to meet economic and population growth. In the absence of this investment, infrastructure becomes overcongested and unreliable, providing less reliable service levels to users.*

Deferred or reduced preventive maintenance only increases the cost of corrective maintenance years down the road.

**Public infrastructure investment is getting smarter.** Capital spending by governments and tax incentives are shifting away from conventional “bricks and mortar” infrastructure and more towards technology, machinery and equipment investment. By focusing investments on technology-based processes and services, the government is striving for efficiency and productivity gains that will result in better service and cost savings to taxpayers.

By accelerating technology investments, the government is following the private sector’s lead in improving business efficiency and productivity. High levels of technology-related spending in the private sector help explain why capital stock per person in the private sector was 81% higher in 1997 than in 1973. Public sector capital stock per person increased only 10% over the same time frame.

Here are some examples of how the government is working hard to catch up and put new technologies to use:

- computers in libraries for public access to Internet based global information infrastructure
- state-of-the-art diagnostic and treatment equipment in hospitals
- electronic tolling systems on highways

- new water conservation and wastewater treatment technologies
- Geographic Information Systems (GIS) provide business with ready access to information on provincial resources, land ownership and utilities – and helps to integrate planning information for transportation, housing and environmental protection
- the province’s Service Ontario kiosk initiative shifts investment away from traditional hard infrastructure – such as government offices – to technology-based infrastructure like self-serve, automated transaction machines.

Infrastructure requiring high levels of technology tends to have a relatively short life span, because of rapid technological improvements and obsolescence. The positive trade-off, in many cases, is capital savings in hard infrastructure as a result of more efficient infrastructure management.

The innovative Ontario-based firms responsible for creating and implementing these high-tech applications also benefit. By showcasing their high-tech infrastructure in Ontario, they find new opportunities to market their products and services internationally.

The companion paper *Creating an Innovation Culture* addresses some of the issues related to technological progress, and its contribution to our economic well-being and quality of life.

## WHEN INFRASTRUCTURE MEETS TECHNOLOGY

The infrastructure-technology marriage creates many economic benefits by maximizing the efficiency of existing infrastructure. Here are a few examples:

- **E-commerce** amounted to \$8 billion in electronic, paperless transactions in North America last year and is forecast to soar to \$134 billion by 2000. A key question: will telecom infrastructure keep pace with the booming demand for high-capacity information superhighways?
- **Convergence** is the merging of computers, phones and TVs – even home appliances and home electrical systems – into a smart all-in-one device.
- **MEMS** (Microelectromechanical Systems), an emerging technology, will allow tiny motors, pumps and sensors to be built right into microprocessors – revolutionizing the way we drive our cars, process food and use appliances.
- **NORTH** (Northern Ontario Remote Telecommunications Health Network) uses existing telecom infrastructure so that physicians and patients in northern hospitals can consult with medical experts at Toronto's Sunnybrook Health Centre through imaging and video conferencing.
- **ITS** (Intelligent Transportation System) includes "Compass", a high-tech traffic management system that monitors and responds to traffic congestion problems on the Highway 401 corridor across Toronto – one of the most heavily travelled sections of roadway in the world.
- **ITBCS** (Intelligent Transportation Border Crossing System) permits non-stop, transborder truck movements at the Fort Erie-Buffalo and Windsor-Detroit bridges, through the use of electronic transponders to collect bridge tolls electronically and pre-clear customs and immigration.

## STRENGTHENING OUR PLANNING AND CO-ORDINATION

Responsibility for infrastructure in Ontario is shared across three different levels of government in Ontario. Effective governance and planning at all levels is a prerequisite for infrastructure development.

Consider:

- How do we meet provincial and municipal taxpayer expectations for high quality infrastructure, low costs and good value for the tax dollar?
- What is the provincial interest in municipal infrastructure? Encouraging minimum uniform standards from one municipality to the next? Encouraging long-term municipal planning?

*The quality of hospitals, schools, parks and social infrastructure such as art and cultural institutions, helps to distinguish one community from the next as attractive places to live, work, invest in and raise a family.*

Promoting greater regional cooperation, coordination and consensus-building between municipal planning agencies?

- What should be the federal government's role in supporting provincial and municipal infrastructure investment in Ontario?

Under the provincial government's *Local Services Realignment* initiative, Ontario's municipalities are assuming responsibility for local infrastructure. The logic is clear: local decisions are best made at the local level, unencumbered by provincial intervention. This move is also aimed at eliminating duplication of government services, and reducing the size and cost of government.

Quality infrastructure at the local level is essential, to ensure that cities and communities are efficient and attractive places to live and work. Like other factors such as closeness to markets and workforce skills, local infrastructure influences companies considering locating or expanding in Ontario.

Along with physical assets such as highways and water treatment plants, local infrastructure includes information and telecommunications networks – in other words the “final” connections that bring cable television, telephone service and the

information highway into our homes and workplaces.

As the provincial and municipal governments focus increasingly on their respective infrastructure responsibilities, new challenges emerge:

- Keeping track of the condition of municipal infrastructure, such as roads, bridges and water systems. This data can help investors, local taxpayers and municipalities compare the efficiency and quality of infrastructure and services.
- Sharing information on “best practices” and success stories in provincial and municipal planning.
- Establishing multi-year capital investment plans in municipalities that need to stage and finance large infrastructure investments.
- Plans to handle natural disasters such as the 1998 ice storm in eastern Ontario and Quebec.
- Planning for *positive* contingencies such as improving local road and water connections to win job-creating and tax-generating business investments in local communities.

Ontario-based agricultural, forestry, mining and manufacturing industries that compete in world markets are among the biggest users of provincial

and municipal infrastructure. The cost of basic services like energy, transportation and water can affect overall production costs, and in turn the cost-effectiveness of our home firms against competitors in other jurisdictions.

Municipalities are pursuing many of the same cost management strategies as the province to achieve savings and efficiencies, including privatization, partnerships and user fees. The new *Development Charges Act, 1997* and changes to the *Municipal Act* set the framework for introducing more flexibility and

innovation in municipal financing, as cities and communities move toward greater financial self-reliance. Opportunities exist for municipalities to develop new approaches to lower their financing costs, such as "pooling" their borrowing requirements with neighbouring municipalities.

For citizens, communities and businesses across Ontario, the bottom line is that provincial and municipal infrastructure should work together safely, efficiently and seamlessly to support economic activity and access to markets.

*Federal government funding of local public infrastructure in Ontario was largely confined to the immediate post-World War Two years and into the 1960's. Federal funding support returned briefly in the 1990's with Canada Ontario Infrastructure Works, a short-term joint program involving matching funds provided by all three levels of government.*

#### ***Case Example: Co-ordinating Ontario's international and transborder infrastructure investments requires the involvement of various governments and public agencies.***

- In Ontario, provincial and municipal governments own highways and roads leading to the border crossings.
- Federal, state and local sources fund highway connections on the US side.
- Canadian and US federal customs, immigration and security agencies control all border-crossing formalities.
- Transborder road bridges and tunnels are operated and financed by independent bi-national authorities.

- The Greater Toronto Area Airports Authority, a private not-for-profit corporation, manages Pearson International Airport, Ontario's premier intercontinental gateway.
- Other airport authorities, representing their own local business, economic development and community interests, compete directly or indirectly with Pearson International for transborder passenger and cargo movements: London, Hamilton and Ottawa.
- Canadian and US rail carriers are responsible for their own transborder bridge and tunnel infrastructure, and compete for market share.
- The federal government is commercializing the Great Lakes /St. Lawrence Seaway system and federal-owned ports.

## *STARTING WITH OUR COMMUNITIES*

The Premier's Conferences on Jobs and Prosperity mark only the beginning of the work ahead. When it comes to a successful action plan for Ontario's infrastructure, planning, consensus building and implementing will have to start in our communities.

### *Consider:*

- The infrastructure needs and opportunities that affect your quality of life in your community, as well as your ties to neighbours and the rest of the world.
- The basic and special infrastructure needs of your business or industry sector to compete effectively in domestic and international markets.
- Financial resources and ability to pay, including the local tax base, competing expenditure pressures, user fees and alternative financing methods.

The objective is not merely a wish list of infrastructure project proposals, but a prioritization and timetable of

investment needs that make good economic sense because they correspond with future demand and available resources. Another important element of the action plan is developing business cases that map out the flexible and innovative approaches for financing, delivering and managing these infrastructure priorities.

To help you, we've offered a series of key questions and challenges for your consideration throughout this paper. Some of them are summarized in the "Where do we go from here?" tear-away section, which we encourage you to fill out and return to us. Your input and ideas are vital to the Panel and Board as we put together a long-term provincial vision and action plan for infrastructure.

Get involved. It's the next step to ensuring infrastructure is part of a winning strategy to create jobs, prosperity and a better quality of life that will move your community's economy – and Ontario's – ahead in the new millennium.

## **WHERE DO WE GO FROM HERE? HAVE YOUR SAY**

In this increasingly open and competitive international environment, Ontario's long-term prosperity will increasingly depend on our ability to identify, plan for and deliver our infrastructure priorities using the most strategic, cost-effective and innovative approaches possible.

*What are the strengths and weaknesses of Ontario's current infrastructure at the provincial, regional and local levels? What are we doing right, and what should we be doing better? How do you think we compare with our competitors?*

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*What are the infrastructure investment priorities for the province and your local area over the next five to 20 years? How can the business community assist in identifying infrastructure needs?*

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*How should the infrastructure priorities be ranked? Which priorities are most important, for example, to your community's quality of life, economic growth, job creation, and connectivity with the rest of Ontario and the world?*

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*How will we pay for our future infrastructure needs? What are the choices and opportunities for innovative planning, financing, implementation and partnerships – to deliver infrastructure in an accountable, efficient and business-like manner?*

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**Please detach and send  
your responses to:  
Ontario Jobs and  
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*How can we use technology more effectively to improve our economic competitiveness and quality of life?*

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*What “best practices” and other admirable features have you noticed about infrastructure planning in your travels to other communities and countries that we can learn and benefit from, right here in Ontario?*

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*What types of infrastructure coordination and cooperation is required among neighbouring communities, between different levels of government and with the private sector?*

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*Please provide your additional comments and suggestions here:*

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*The Ontario Jobs and Investment Board was established  
to develop an economic vision and strategies for  
Ontario in the New Millennium.*

**Mike Harris**

*Premier and Chair of  
Ontario Jobs and Investment Board*

**Ernie Eves**

*Deputy Premier and Minister of Finance*

**Dave Johnson**

*Minister of Education and Training*

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*Minister of Economic Development,  
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